

WHAT IS CLAIMED IS:

1. A cyclone separator comprising a cyclone portion for generating an eddy flow at a given flow rate by feeding a liquid containing a fine substance from liquid discharge passageways, for transferring the fine substance to an outer side by applying a centrifugal force to issue the fine substance-free liquid from a liquid flow-out passageway, and for precipitating the fine substance by decelerating the eddy flow,

the liquid discharge passageways being disposed at plural sites; and

said cyclone separator further comprising:

a liquid pressurizing chamber formed around the plural liquid discharge passageways in communication therewith; and

a liquid introduction passageway for introducing the liquid containing the fine substance into the liquid pressurizing chamber.

2. A cyclone separator comprising a plurality of cyclone portions disposed in parallel, said cyclone portion generating an eddy flow at a given flow rate by feeding a liquid containing a fine substance from liquid discharge passageways, transferring the fine substance to an outer side by applying a centrifugal force to issue the fine

substance-free liquid from a liquid flow-out passageway, and precipitating the fine substance by decelerating the eddy flow,

a plurality of the liquid discharge passageways being disposed at each cyclone portion,

said cyclone portion further comprising:

a liquid pressurizing chamber formed in communication with the plural liquid discharge passageways;

a liquid introduction passageway for introducing the liquid containing the fine substance into the liquid pressurizing chamber; and

an external discharge part for issuing the liquid by joining the liquid discharge passageways at respective cyclone portions.

3. The cyclone separator according to Claim 1 or 2, comprising:

an introduction pipe having the liquid introduction passageways for introducing the liquid containing the pulverized fine substance, and

an orifice ring disposed within the introduction pipe and having liquid discharge passageways formed at plural sites,

the pressurizing chamber communicating with the liquid discharge passageway being formed between the introduction

pipe and orifice ring.

4. The cyclone separator according to any one of Claims 1 to 3, wherein the liquid discharge passageways are disposed at symmetrical positions when viewed from the direction along the axis of the cyclone portion.

5. The cyclone separator according to any one of Claims 1 to 4, wherein the liquid discharge passageways are disposed with an equal distance apart from one another.

6. The cyclone separator according to any one of Claims 3 to 5, wherein the liquid discharge passageways permit the liquid to flow in a tangent direction of the inner wall of the orifice ring.

7. The cyclone separator according to any one of Claims 3 to 5, wherein the liquid flow passageways are formed so as to be displaced in the tangent direction toward the inside of the inner wall of the orifice ring.

8. The cyclone separator according to any one of Claim 7, wherein the liquid flow passageways are displaced 0.5 to 1.5 mm inside in the tangent direction of the inner wall of the orifice ring.

9. The cyclone separator according to any one of Claims 1 to 8, wherein the liquid discharge passageways are formed into a curved shape.

10. The cyclone separator according to any one of Claims 3 to 9,

wherein the orifice ring comprises an inner ring having an outlet side liquid discharge passageway and an outer ring having an inlet side liquid passageway, and

wherein the liquid flow-in rate of the liquid discharge passageway is variable by a sliding movement between the inner ring and outer ring in a circumference direction.

11. The cyclone separator according to any one of Claims 1 to 10, wherein the liquid discharge passageway has a larger cross-sectional area at the inlet side than the cross-sectional area at the outlet side.

12. The cyclone separator according to Claim 7, wherein the liquid discharge passageway has a linear passageway surface parallel to the tangent of the inner wall of the orifice ring, and a convex passageway surface at the linear passage surface side.

13. The cyclone separator according to any one of Claims 3 to 12, wherein the orifice ring is exchangeable with another orifice ring having a different liquid discharge passageway.

14. The cyclone separator according to any one of Claims 3 to 13 comprising:

a liquid flow-in part having the liquid discharge passageway formed to upwardly open at the upper part in the vertical direction of the cyclone portion; and

a cover having the liquid flow-out passageway to close the opening of the liquid flow-in part,

the orifice ring being supported between the liquid flow-in part and the cover to be attachable and detachable.

15. The cyclone separator according to Claim 2, wherein the external discharge part is disposed on a line different from the extended line of the liquid introduction passageway.

16. The cyclone separator according to Claim 2, wherein the external discharge part is disposed on the extended line of the liquid introduction passageway.